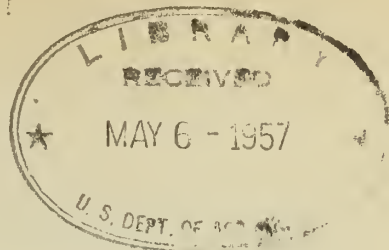


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SNOW SURVEYS AND IRRIGATION WATER FORECASTS

FOR OREGON

AS OF

FEBRUARY 1, 1938

\* \* \*

Issued Feb. 10, 1938  
Medford, Oregon

The following data pertaining to snow surveys and irrigation water-supply forecasts are provided by the Bureau of Agricultural Engineering of the U. S. Department of Agriculture, in cooperation with the Oregon State Engineer, other Federal Bureaus and local organizations. 1/

\* \* \*

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Washington, D. C.



Status of valley precipitation as of October 1 to date:

Month	Oct.		Nov.		Dec.		Jan.		Period	
Section	P	D	P	D	P	D	P	D	P	D
S.E.	.82	+.22	1.81	+.98	1.89	+1.03	1.0	0.0	5.52	+2.23
S.C.	1.48	+.60	2.26	+1.04	3.55	+1.59	1.7	0.0	9.69	+3.23
N.C.	1.04	+.21	2.40	+.76	2.41	+.73	.7	-.7	6.55	+1.00
Col.Riv.	.82	-.12	2.23	+.45	2.41	+.79	1.1	-.5	6.56	+0.62
Wal.Mts.	1.97	-.73	3.09	-.14	2.96	+.44	1.7	-.7	9.72	-1.13
Blue Mts.	1.62	+.22	2.60	+.69	2.26	+.34	1.4	-.8	7.88	+0.45
Southern	3.06	+.87	7.61	+3.54	4.71	+.55	4.5	+.4	19.88	+5.36
Area	1.54	+.18	3.24	+1.05	2.88	+.78	1.7	-.3	9.40	+1.68

P - Inches precipitation      D - Inches departure from normal

S.E. - Southeastern Oregon range lands, Harney and Malheur Counties.

S.C. - Southcentral Oregon range lands, Lake County and Klamath County, except the Cascade Mountains.

N.C. - Northcentral Oregon wheat and range lands, Crook, Deschutes, Jefferson, Wheeler and part of Grant Counties.

Col. Riv. - Columbia River area wheat and range lands, Gilliam, Morrow, Sherman, Wasco, and part of Umatilla Counties.

Wal. Mts. - Wallowa Mountain area forest and range lands, Wallowa and part of Baker County.

Blue Mts. - The Blue Mountain forest and range area, Union and parts of Baker, Grant and Umatilla Counties.

Southern - Southern Oregon irrigated section, Jackson and Josephine Counties.

Note: Data for the last month shown above are preliminary only, as they are based on a few stations only. Data for earlier months have been corrected to include all the stations in climatological data for the area.



### COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

For Oregon as a whole, and for elevations above 5,000 feet, of the courses reporting, 20 have a comparative record for 1937. Average snow water content of these 20 courses is only 55 percent of that found at the same time last year. 17 of these 20 courses have a comparative record for 1936. On these 17 courses, 1938 snow water content averages only 36 percent of that found on the same courses at the same time in 1936.

For elevations from 3,000 to 5,000 feet, there are 23 courses reporting in 1938 that have a comparative record for 1937. Average snow water content of these courses is only 31 percent of that found at the same time last year. Of these 23 courses, there are 14 with a comparative record for 1936. On these 14 courses, 1938 snow water content averages only 27 percent of that found on the same courses at the same time in 1936.

It is recalled that January precipitation of 1937 occurred largely in the form of snow at lower elevations, which resulted in a greater average snow depth at lower elevations than usual. The reverse has been the case this year. Altho snow at high elevations is deficient, being 55 percent of that for last year, snow at lower elevations is more deficient still, being only 31 percent of last year and only 27 percent of the year before. Most of the winter precipitation at the lower elevations has come as rain rather than snow this year. This has resulted in generous wetting of the watersheds and considerable winter run-off.

Soil of the watersheds, in general, was unfrozen and very dry during late January, 1937, whereas this year, watersheds, while mostly unfrozen or frozen only to depths of 3 inches or less, are very wet.

There is evidence to indicate that if watershed soils are well wetted before being covered by snow, the water yield to streams from a given amount of snow will be greater than from the same snow water content deposited on dry watershed soils. Therefore, the anticipated 1938 stream run-off should not be reduced from that of 1936 or 1937 in the same ratio that snow water content may be decreased.

Generally heavy storms early in February have increased the snow cover moderately to materially over the amounts reported herein for the last of January, but continued heavy snow will be required to assure a satisfactory outlook in some parts of the State, especially those lacking in storage facilities. Final seasonal snow measurements upon which definite forecasts are based, will be made during the closing days of March.



## THE HISTORY OF THE UNITED STATES

The history of the United States is a story of growth and development. It begins with the first settlers who came to the continent, and it ends with the present day. The story is one of a people who have built a great nation out of a wilderness.

The first settlers came to the continent in the early years of the 17th century. They were men of courage and adventure, who sought a new life in a new land. They found a land of great beauty and fertility, and they began to build a new home.

The first settlers were men of many different backgrounds. Some were English, some were Dutch, some were French. They all came to the continent for different reasons, but they all found a common purpose in the building of a new nation.

The first settlers were men of great courage and adventure. They faced many hardships and dangers, but they never gave up. They built a new home out of a wilderness, and they created a new nation.

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STATUS OF RESERVOIR STORAGE AS OF JANUARY LAST

In the following tabulation, water storage in acre feet in some selected Oregon reservoirs as of About February 1, 1938 is compared with storage as of the same time in 1937.

Storage Reservoir	Stream Basin	Capacity Acre Ft.	In Storage Acre Feet	
			About 2-1-38	About 2-1-37
Agency Valley	Malheur	60,000	22,110	22,340
Crane Prairie	Deschutes	55,220**	40,550	35,390
Crescent Lake	Deschutes	80,000	33,570	25,960
Emigrant Gap	Rogue	8,200	7,568	Dry
Fish Lake	Rogue	7,720	3,911	4,820
Four Mile Lake	Klamath*	14,000	11,434	7,550
Garber	Klamath	94,000	44,560	36,370
Hyatt Prairie	Klamath*	16,000	6,891	3,500
McKay	Umatilla	75,000	21,440	4,021
Ochoco	Crooked	47,500	10,780	540
Owyhee	Owyhee	715,000	556,350#	629,390
Wallowa Lake	Wallowa	40,920	12,880	6,960
Warm Springs	Malheur	170,000	30,840	12,440
Willow Creek	Malheur	26,000	Dry	Dry

\* By ditch to Rogue River side.

\*\* 40,500 by agreement.

# January 1, 1938

1/ The snow measurements are made principally by State Water-masters, employees of irrigation and power companies and Oregon Highway engineers, and field personnel of the following Federal Government organizations: Forest Service, Geological Survey, Bureau of Reclamation, Biological Survey, Indian Service, National Park Service and Bureau of Agricultural Engineering. This work is otherwise conducted cooperatively with the State Engineer of Oregon, Oregon Experiment Station, Oregon Cooperative Snow Surveys, and with the U. S. Weather Bureau.

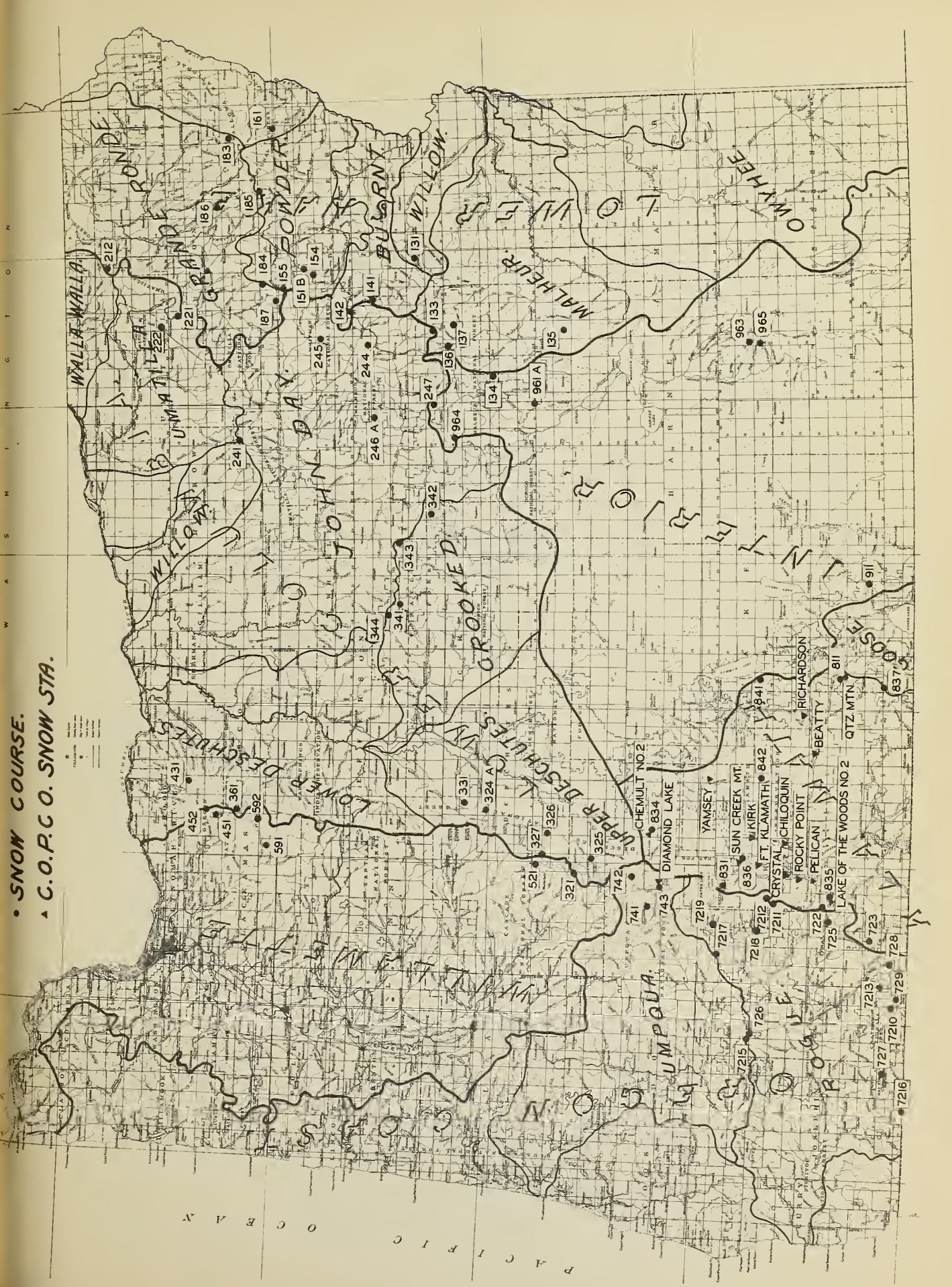
2/ Water content determined by melting a measured sample.  
(California Oregon Power Company Station).

3/ Remarks: G.F. - Ground frozen; G.N.F. - Ground not frozen;  
N.R. - No report.





**IRSE.**  
**SNOW**





TRIBUTARY BASINS (Primary & Secondary & Snow Courses)	LOCATION			SNOW COVER MEASUREMENTS				
	Oregon Number	Sec. Twp. Range	Elev.	1938 Survey Date	Avg. Snow Depth (In.)	Avg. Water Depth (In.)	Avg. on nearest cor- responding date last two years (Inches)	Remarks
							1937	1936
<u>UPPER COLUMBIA DRAINAGE</u>								
<u>LOWER SNAKE IN OREGON</u>								
<u>OWYHEE RIVER</u>								
Silver City		6 5S 3W	6400	N.R.	N.R.	9.4	22.9	
<u>MALHEUR RIVER</u>								
Blue Mountain Spring	133	21 15S 35E	5900	1-29	26.3	9.0	13.4	G.N.F.
Rock Spring	134	23 18S 32E	5100	1-31	5.2	1.3	8.7	G.F. 2"
Stinking Water	135	6 21S 37E	4800	2-2	5.7	2.7	-	Ice on grd.
Lake Creek	136	10 16S 33E	5120	1-29	21.1	7.8	-	G.F.
Grane Prairie	137	24 16S 34E	5375	1-30	13.9	4.1	-	G.F.
<u>BURNT RIVER</u>								
Blue Mountain Summit	141	6 12S 36E	5098	1-31	11.8	1.3	7.8	G.F.
Tipton	142	34 10S 35½E	5100	1-25	19.3	4.5	-	
<u>POUNDER RIVER</u>								
Bourne	154	33 8S 37E	5800	1-30	36.7	9.9	14.4	
Eilertson Meadows	151B	18 8S 38E	5400	1-30	18.9	5.0	-	
<u>PINE CREEK</u>								
Schneider Meadows	161	35 6S 45E	5400	1-30	75.0	21.4	-	G.N.F.





TRIBUTARY BASINS (Primary & Secondary & Snow Courses)	LOCATION			SNOW COVER MEASUREMENTS					Remarks
	Oregon Number	Sec. Twp. Range	Elev.	1938 Survey Date	Avg. Snow Depth (In.)	Avg. Water Depth (In.)	Avg. on nearest courses beginning date last two years (inches)	Depth	
GRANDE RONDE RIVER									
Aneroid Lake	183	16 4S 45E	6500	N.R.	N.R.	N.R.	9.3	17.3	
Moss Spring	186	27 3S 41E	5860	1-31	47.3	15.3	-	-	G.N.F.
<u>LOWER COLUMBIA DRAINAGE</u>									
WALLA WALLA RIVER									
Toll Gate	212	33 4N 38E	6300	1-28	29.0	9.7	16.6	27.8	
UMATILLA RIVER									
Emigrant Springs	222	29 1N 35E	4600	1-25	5.1	1.0	7.5	9.9	
Near Meacham	221	24 1S 35E	4600	1-25	6.6	2.1	9.3	11.2	
WILLOW CREEK									
Arbuckle Mountain	241	33 4S 29E	5400	1-27	10.4	2.8	14.1	10.4	
JOHN DAY RIVER									
Arbuckle Mountain	241	33 4S 29E	5400	1-27	10.4	2.8	14.1	10.4	
Beech Creek Summit	246A	4 12S 30E	4912	1-29	6.6	2.0	4.9	4.9	
Blue Mountain Spring	133	21 15S 35E	5900	1-29	26.3	9.0	8.2	13.4	G.N.F.
Blue Mountain Summit	141	6 12S 36E	5098	1-31	11.8	1.3	6.3	7.8	G.F.
Izoe Summit	964	28 16S 29E	5293	1-31	9.1	1.7	5.5	9.2	
Olive Lake	245	14 9S 33E	6000	1-30	31.1	8.7	8.4	15.6	
Starr Ridge	247	20 15S 31E	5193	1-31	5.5	0.9	4.4	5.6	G.N.F.



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TRIBUTARY BASINS (Primary & Secondary & Snow Courses)	LOCATION		Oregon Number	Sec. Twp. Range	Elev.	1938 Survey Date	SNOW COVER MEASUREMENTS			Remarks
							Avg. Snow Depth (In.)	Avg. Water Depth (In.)	Avg. on nearest cor- responding date last two years (Inches)	
									1937	1936
DESCUUTES RIVER										
Hogg Pass		351	24	13S	4924	1-30	51.6	15.0	-	-
Marks Creek		344	25	12S	4540	1-27	4.0	0.9	-	G.F.
Caldwell Ranch		326	30	21S	4400	1-28	16.5	4.1	-	G.F.
Cascade Summit		321	7	23S	5200	1-31	32.4	8.8	25.1	-
Charlton Lake		327	23	21S	5750	1-28	31.8	9.0	-	G.F.
Crescent Lake		325	11	24S	4760	1-31	12.6	3.1	11.0	-
Ochocho Meadows		341	21	13S	5200	N.R.	N.R.	N.R.	6.1	13.5
Tamarack		342	8	15S	4600	1-27	7.1	1.7	4.9	-
Three Creeks Meadows		331	13	17S	6056	1-30	22.2	8.2	18.5	-
Derr		343	14	13S	5670	1-28	14.2	3.2	-	G.N.F.
SANDY RIVER										
Still Creek		451	25	3S	3700	1-31	21.0	6.1	-	G.F. 2 1/2"
Mt. Hood		452	6	3S	5600	2-1	83.4	31.8	-	G.N.F.
CLACKAMAS RIVER										
Peavine Ridge		591	14	6S	3500	2-1	21.4	6.5	-	G.N.F.
Clackamas Lake		592	35	5S	3400	1-30	14.3	4.6	-	G.F.
WILLAMETTE RIVER										
Cascade Summit		321	7	23S	5200	1-31	32.4	8.8	25.1	-
Charlton Lake		327	23	21S	5750	1-28	31.8	9.0	-	G.F.
Waldo Lake		521	8	21S	5460	1-27	21.0	5.4	-	G.F. in open

1871	1872	1873	1874	1875
100	100	100	100	100
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100	100	100	100	100
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100	100	100	100	100

TRIBUTARY BASINS (Primary & Secondary & Snow Courses)	LOCATION		SNOW COVER MEASUREMENTS				
	Oregon Number	Sec. Twp. Range.	Elev.	1938 Survey Date	Avg. Snow Depth (In.)	Avg. Water Depth (In.)	Remarks
						Av. Water Depth on nearest cor- responding date last two years (Inches)	
						1937	1936
<u>I N T E R I O R D R A I N A G E</u>							
HARNEY BASIN							
Idylwild Camp	961A	33 20S 31E	5200	1-31	6.2	1.6	8.4 G.F. 2"
Izee Summit	964	28 16S 29E	5293	1-31	9.1	1.7	9.2
Rock Spring	134	23 18S 32E	5100	1-31	5.2	1.3	8.7 G.F. 2"
Starr Ridge	247	20 15S 31E	5194	1-31	5.5	0.9	5.6 G.N.F.
<u>W A R N E R L A K E</u>							
Burnt & Camas Creeks	911	12 39S 21E	6200	N.R.	N.R.	N.R.	14.3
<u>N O R T H U M P Q U A R I V E R</u>							
Diamond Lake	743	29 27S 6E	5315	1-29	30.7	7.9	15.6 G.F. in open
North Umpqua near Lake Creek	742	19 26S 6E	4215	1-29	16.8	4.0	14.1 G.N.F.
Trap Creek	741	1 27S 4E	3800	1-28	19.4	5.1	14.4 G.N.F.
<u>R O G U E R I V E R</u>							
Althouse	7216	17 41S 7W	4400	1-26	2.0	Trace	18.6
Annie Spring	831	19 31S 6E	6018	1-26	66.7	22.8	37.2 G.F.
Big Red Mountain	729	33 40S 1W	6500	1-27	41.1	13.2	27.6 G.N.F.
Billie Creek Divide	722	17 36S 5E	6000	2-1	31.0	9.2	28.0
Fish Lake	725	3 37S 4E	4865	1-31	21.4	6.7	17.1 G.N.F.



## TRIBUTARY BASINS

## LOCATION

## SNOW COVER MEASUREMENTS

(Primary & Secondary & Snow Courses)	Oregon Number	Sec.	Twp.	Range	Elev.	1938 Survey Date	Avg. Snow Depth (In.)	Avg. Water Depth (In.)	Avg. on nearest courses pending data last two years (Inches)	Remarks
1937										
1938										
Goolaway Gap	726	32	32S	5W	3000	1-28	0.0	0.0	9.9	G.N.F.
Goolaway Mountain	7215	30	32S	3W	3730	1-28	4.2	1.7	14.3	G.N.F.
Grayback Peak	727	9	40S	5W	6000	1-27	17.7	4.9	21.7	G.N.F.
Hyatt Prairie Reservoir	723	15	39S	3E	4900	1-27	15.1	3.5	13.8	G.N.F.
Little Red Mountain	7210	25	40S	2W	6500	1-27	26.6	7.6	11.4	G.N.F.
Seven Lakes No. 1	7211	3	34S	5E	6800	1-26	65.5	21.8	-	G.N.F.
Seven Lakes No. 2	7212	26	33S	5E	6200	1-26	50.3	15.8	-	G.N.F.
Silver Burn	7219	30	30S	4E	5720	1-30	12.0	3.4	-	G.N.F.
Siskiyou Summit	728	17	40S	2E	4630	1-30	8.9	2.2	8.6	G.F. 1"
South Fork Canal	7218	12	33S	3E	3500	1-30	Trace	-	-	
Wagner Butte	7213	1	40S	1W	6800	1-29	20.2	3.9	11.6	G.N.F.
Whaleback	7217	3	31S	2E	5140	1-30	38.8	11.4	-	G.N.F.
KLAMATH LAKE BASIN										
Annie Spring	831	19	31S	6E	6018	1-26	66.7	22.8	-	G.F.
Beatty 2/		22	36S	12E	4300	1-31	0.0	0.0	1.5	0.6
Billie Creek Divide	722	17	36S	5E	6000	2-1	31.0	9.2	17.1	28.0
Chemult No. 1	834	21	27S	8E	4760	1-31	18.0	4.1	7.0	N.R.
Chemult No. 2 2/		21	27S	8E	4761	1-31	15.0	5.1	6.3	9.4
Chiloquin 2/		34	34S	7E	4187	1-31	3.0	1.7	4.2	N.R.
Crystel 2/		26	34S	6E	4200	1-31	9.0	1.7	8.1	9.0
Fort Klamath 2/		22	33S	7 1/2 E	4150	1-31	7.7	2.5	4.6	6.8
Hyatt Prairie Reservoir	723	15	39S	3E	4900	1-27	15.1	3.5	13.8	13.0
Kirk 2/		1	33S	7E	4533	1-31	7.0	2.1	6.0	13.5
Lake of the Woods No. 1	835	11	37S	5E	4960	N.R.	N.R.	N.R.	5.8	N.R.
Lake of the Woods No. 2 2/		15	37S	5E	4960	N.R.	N.R.	N.R.	11.0	16.5
Quartz Mountain 2/		33	37S	16E	5504	1-31	15.5	3.4	4.5	9.5
Pelican 2/		10	36S	6E	4200	1-31	3.0	1.0	5.5	4.0

Ice on grd.







TRIBUTARY BASINS

LOCATION

SNOW COVER MEASUREMENTS

(Primary & Secondary & Snow Courses)	Oregon Number	Sec. Twp. Range	Elev.	1938 Survey Date	Avg. Snow Depth (In.)	Avg. Water Depth (In.)	on nearest corres- ponding date last two years (Inches)	Remarks
Richardson Ranch 2/		22 35S 14E	4800	1-31	12.0	1.9	3.5	4.8
Rocky Point 2/		26 35S 6E	4150	1-31	5.5	1.0	5.2	4.5
Seven Lakes No. 1	7211	3 34S 5E	6800	1-26	65.5	21.8	-	G.M.F.
Seven Lakes No. 2	7212	26 33S 5E	6200	1-26	50.3	15.8	-	G.N.F.
Sumner Rim	841	15 33S 16E	7200	N.R.	N.R.	N.R.	8.3	-
Taylor Butte	842	16 33S 11E	5100	1-31	8.4	2.2	3.3	G.F.
Yamsey 2/		19 30S 11E	4600	1-31	8.0	0.5	6.2	1.1
Strawberry	837	4 40S 16E	5600	1-30	12.5	4.0	-	G.N.F.

GOOSE LAKE BASIN

Quartz Mountain 2/		33 37S 16E	5504	1-31	15.5	3.4	4.5	9.5
Quartz Valley	811	34 37S 16E	5500				4.1	11.2
Strawberry	837	4 40S 16E	5600	1-30	12.5	4.0	-	G.N.F.

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89	1000	1000
90	1000	1000
91	1000	1000
92	1000	1000
93	1000	1000
94	1000	1000
95	1000	1000
96	1000	1000
97	1000	1000
98	1000	1000
99	1000	1000
100	1000	1000